

LC 2017: PAPER 2

QUESTION 6 (25 MARKS)

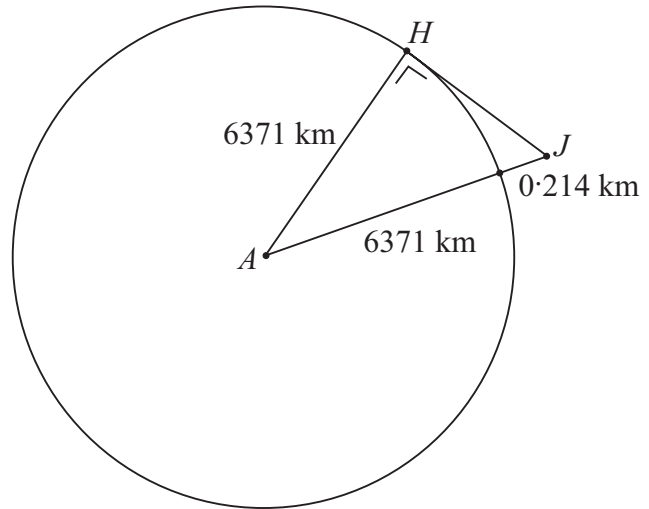
Question 6 (a)

JH is a tangent to the circle.
Therefore, HJ is perpendicular to AH.

$$|AJ|^2 = |AH|^2 + |JH|^2$$

$$(6371 + 0.214)^2 = 6371^2 + |JH|^2$$

$$|JH| = \sqrt{6317 \cdot 214^2 - 6317^2} \approx 52 \text{ km}$$



Question 6 (b)

Consider $\triangle ABC$: $\sin 37^\circ = \frac{|BC|}{6371}$

$$|BC| = 6371 \sin 37^\circ = 3834.2 \text{ km}$$

$$\text{Length of } s_1 = 2\pi(3834.2) \approx 24\,091 \text{ km}$$

